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ABSTRACT

This monograph presents six auto-tutorial units designed to be used by instructors who wish to improve their science teacher strategies. Emphasis is placed on the development and application of simplified objective classroom data gathering techniques. The population that could be served by their use includes: (1) Regular Elementary Teachers, (2) Undergraduate Preservice Teachers, (3) University Methods Instructors, (4) Supervisors of Student Teachers, (5) Student Teachers, and (6) Cooperating Teachers. Each unit is entirely self-contained. It includes an instructor's manual, participant study guide and the related video-taped materials. They can be used by individuals or by larger groups, under the direction of a workshop leader. Unit one serves to establish the background rationale and outlines the procedures for using the other units. In each unit, an introduction, a practice session, a critique procedure and a summary constitute the format. These units are: The Behavioral Analysis, The Question Directional Flow, The Question Response Time, The Response Reinforcement, and The Discipline and Verbal Control. A Leadership Guide is presented which focuses upon the technical and procedural aspects of presenting the Instructional Strategies package. (Author/EB)

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GENERAL SCIENCE INSTRUCTIONAL STRATEGIES

By

CARLTON W. KNIGHT, II
Del Mod Project Director

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GENERAL SCIENCE INSTRUCTIONAL STRATEGIES

LEADERSHIP GUIDE

LEADERSHIP GUIDE

for

GENERAL SCIENCE INSTRUCTIONAL STRATEGIES

by

Carlton W. Knight, II

Science Education
College of Education
University of Delaware
Newark, Delaware 19711

PROJECT STAFF

Graduate Assistant
Sally G. Kehoe

Undergraduate Assistants
Linda Hiett
Cathy Lawton
Rosemarie Paoli
Carolyn Pritchett
Janet Zinkowski

Note: Unit I, "Instructional Overview" must be read prior to reviewing this Leadership Guide.

Preparation of these units was supported by the National Science Foundation Grant No. G.W. 6703 to Del Mod System, PO Box 192, Dover, Delaware.

Experimental Edition
Third Revision

LEADERSHIP GUIDE

Introduction

The Leadership Guide focuses upon the technical and procedural aspects of presenting the General Science Instructional Strategies package of six auto-tutorial video-tape units. The following information will have little meaning without the underlying philosophy and supporting rationale presented in the prerequisite Unit I. Therefore, the Unit I manual, "Instructional Overview," MUST BE READ PRIOR TO REVIEWING THIS LEADERSHIP GUIDE.

The Package

The package of six auto-tutorial video-tape units, corresponding manuals, and this leadership guide is designed to be a vehicle for improving the teaching strategies of pre-service and in-service teachers through the utilization of simplified objective data-gathering classroom analysis techniques. Included in this package are the following components:

Unit I: Instructional Overview (20 minutes)

This unit serves to establish the background rationale of the objective data-gathering analysis technique, describes the format of the units, outlines the procedures for using the other five units and suggests application of the package in various educational settings.

Unit II: Behavioral Analysis (15 minutes)

This unit introduces a behavior key which can be used to systematically record the physical behavior of students during a class session. The viewer is given an opportunity to practice using the key while collecting data during the simulated teaching session.

The objective data are then analyzed and summarized. Suggestions for simple modifications of the technique are also presented.

Unit III: Question Directional Flow (15 minutes)

This unit describes a questioning pattern key which is used for recording the question interaction between students and teachers in a class session. A split screen enables the viewer to gather data from the simulated classroom scene and compare the data with that of the on-camera observer. This split-screen technique is used frequently throughout the auto-tutorial package.

Unit IV: Question Response Time (15 minutes)

This unit presents a simplified procedure for objectively recording the amount of time a teacher waits for a student to respond to her question. The proper use of a verbal key and a timing mechanism is discussed giving appropriate examples.

Unit V: Response Reinforcement (15 minutes)

This unit introduces a simplified technique for recording a teacher's response to a student's answer to her question. The effect of verbal reinforcement on student responses is stressed.

Unit VI: Discipline and Verbal Control (13 minutes)

Various student control strategies and methods of recording significant discipline interactions are reported in this unit. The unit format includes an on-going commentary with inserts of simulated classroom situations.

Implementation Responsibilities

The units included within the package may be presented as independent auto-tutorial units to individual teachers or to groups of teachers in a workshop setting. In either situation, the responsibilities of implementation director are essentially the same.

The director should:

1. facilitate an understanding of the supporting rationale,
2. help participants acquire the respective data-gathering techniques, and
3. encourage the application of the techniques and instructional improvement strategies in the classroom.

Logistically, the director or coordinator should:

1. identify a suitable location for either individual self-instruction or a group workshop,
2. obtain the proper audio-visual equipment,
3. provide appropriate manuals, and
4. schedule the sessions in the optimum sequence.

Logistical Considerations

The following considerations apply to both the individual self-instructional and group workshop settings.

I. Manuals

A. Each participant should have a copy of the manual(s) that accompanies the unit(s) being presented.

B. Extra practice sheets, if desired, may be copied from the corresponding practice form found in each unit manual.

II. Video Equipment

A. The video recorder (playback only) must be compatible with the video tape.

B. Obtain sufficient large screen monitors.

1. If participants are planning to actually practice gathering data, the monitor should be:

a. relatively close to the observers, and

b. at or near eye level.

2. An ideal ratio, if using the practice sessions to gather data, is one monitor for every two or three participants.

3. Do not overload your recorder (playback) with too many monitors.

III. Presentation Sequence

A. Always begin with Unit I, Instructional Overview.

B. Unit III, Question Directional Flow is a natural follow-up because it is reviewed extensively in Unit I and is one of the easier observational techniques to master.

C. The remaining units may be presented in any order.

Major Concepts

The following major points must be stressed and continually reinforced throughout an inservice implementation.

I. The most effective teacher is one who can accomplish her methodological objectives as well as her content objectives.

A. Because teachers are generally involved in their own instruction, they may perceive the effects of their teaching from a biased point of view.

B. An impartial observer can provide the teacher with objective feedback regarding what actually occurred within the classroom.

II. The educational techniques are simple and easy to use.

A. Encourage teachers to modify each technique to better meet their specific needs.

B. Inservice participants should also be encouraged to create their own simplified observational techniques.

III. All observational data is to be summarized objectively.

A. Subjective evaluations simply force opinion against opinion.

B. Objective summaries, although seemingly cold and factual, are far less threatening to the instructor.

C. Maintaining a nonthreatening atmosphere enables the observer to continue providing valuable observational feedback.

IV. All decisions regarding the success or failure of a lesson are made by the teacher herself.

A. The observer does not force the issue but merely provides objective feedback.

B. The teacher determines success or failure by comparing the resulting data with her methodological objective for the period.

V. Instructional improvement will usually result when the teacher realizes that her current strategies are not producing the desired effect.

A. The teacher may develop her own new strategies.

B. She may also seek the advice of peers.

C. She may, depending upon the relationship established, discuss her difficulties with the observer.

Workshop Format

Two video units, based upon past experience, appear to be the optimum number of units that should be presented during any one workshop session. Under certain circumstances, a session may be expanded to include three units. The implementation director, however, must be continually aware of the motivation level of the workshop participants. When presenting the units, consider the following suggestions.

1. Stop the video tape for discussion or clarification at any point.
2. Replay any segment or unit practice session as many times as the group might desire.
3. Make a particular point to stop the video tape after each unit subsection (e.g., the introduction, critique, etc.) and ask for questions from the group.
4. Encourage the participants to practice using each technique between your workshop sessions.
   a. Participants might have the opportunity to do so in their own classes, in outside group meetings, or in almost any situation where people have gathered.
   b. If participants have been able to gather data between sessions, plan to devote a portion of the subsequent period to a discussion of that data.
5. Using the simplified technique to gather observational data is much easier in a regular classroom than it is from the video taped practice session section of each unit.
6. The following information may be of assistance when responding to questions regarding the simulated classroom scenes.
   a. All practice session classes were video taped in a television studio.

b. Elementary students participating in these sessions were directed to perform in a manner that would best facilitate observers gathering a specific type of data.

c. These sessions are intended to present an opportunity for practice data gathering only and are not actual classroom scenes.

Additional Information

For information regarding the availability of these units contact either:

Dr. Carlton W. Knight, II
Science Education
College of Education
University of Delaware
Newark, Delaware 19711

or

Resource Center
College of Education
University of Delaware
Newark, Delaware 19711

UNIT 6

DISCIPLINE AND VERBAL CONTROL

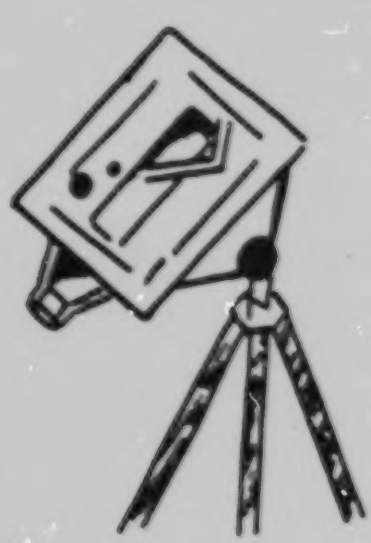
Dialogue with Sally Kehoe
University of Delaware
Newark, Delaware

Scene I
Kay Haubois
Forest Oak Elementary
Stanton, Delaware

Scene II
Rosemarie Paoli
University of Delaware
Newark, Delaware

Scene III
Janet Zinkowski
University of Delaware
Newark, Delaware

Preparation of this video unit was supported by the National Science Foundation Grant, No. G. W. 6703 to Del Mod System, P. O. Box 192 Dover, Delaware 19901



UNIT 1

INSTRUCTIONAL OVERVIEW

UNIT 1

INSTRUCTIONAL OVERVIEW

BY

CARLTON W. KNIGHT, II

SCIENCE EDUCATION CENTER
COLLEGE OF EDUCATION
UNIVERSITY OF DELAWARE
NEWARK, DELAWARE

PROJECT STAFF

Graduate Assistant

Sally Kehoe

Undergraduate Assistants

Linda Hiett
Cathy Lawton
Rosemarie Paoli
Carolyn Pritchett
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Experimental Edition
Third Revision

INTRODUCTION

The six auto-tutorial units that are included in this package are designed to be used by instructors who wish to improve their science teaching strategies.

The emphasis within these units is on the development and application of simplified objective classroom data gathering techniques.

POPULATION SERVED
1. Regular Elementary Teachers
2. Undergraduate Preservice Teachers
3. University Methods Instructors
4. Supervisors of Student Teachers
5. Student Teachers
6. Cooperating Teachers

The package is used to develop a common background of instructional improvement strategies among (1) regular elementary teachers (2) undergraduates (3) methods instructors (4) supervisors of student teachers (5) student teachers (6) and their cooperating teachers.

Each unit is entirely self-contained.

It includes an instructor's manual, participant study guide, and of course the related video taped materials.

They can be used by individuals in self-improvement settings, or by larger groups, under the direction of a workshop leader.

Now, as I mentioned before, there are six units in the overall package.

The first one, this one that you're viewing right now, serves to establish the background rationale and outlines the procedures for using the other five units.

Each of these remaining five units in turn describes and demonstrates a specific simplified classroom observational technique.

Each of these techniques will be summarized later on in this unit.

The philosophy which supports the use of these instruments for classroom improvement is based upon the assumption that the most effective teacher is one who can accomplish her methodological objectives as well as her content objectives.

METHODOLOGICAL OBJECTIVES

This is not as easy as it appears.

We as teachers often have a very distorted perception of reality.

Because we're ego involved in our instruction we often times don't see the classroom as objectively as we might.

For example, I'm leading a discussion on seed germination. I'm really interested in seed germination, and it appears from my perception that the students are participating quite nicely.

In fact at the end of the period I'm quite pleased with what happened in the class.

However, an unbiased observer gathering data may approach me and say, "This is what happened in your class.

Did you realize that 25 out of 30 students participated at least once, but did you also realize that 80% of the verbal interactions were accounted for by only 5 students."

Now, initially I may have been quite pleased with the reaction; but now that I see the objective specific data, I'm forced to reevaluate.

Through analysis of this data I can determine what instructional strategies I might need to implement in order to have a more uniform participation during my next discussion session.

The key to the entire operation is of course objective non-judgmental data.

OBJECTIVE
NON-JUDGMENTAL
DATA

After observing in your classroom, if I approach you and say, "I think your lesson went quite poorly today," I automatically put you on the defensive.

Even if I specify reasons why I feel that things didn't go too well we still have established a defensive posture.

Your opinion with all due respects is just as valid as mine.

So, therefore, my subjective opinion "your poor instruction" is equal in basis to your subjective "I did a good job" instruction type thing.

It could be that some of the "poor" instructional strategies that I observed in your classroom were done quite intentionally.

Let's say that this was the day that you determined not to let Joe and John monopolize the conversation, but rather you wanted to give Sean and Marty a chance to participate.

Subsequently, what I considered to be very questionable instructional strategies in this case were certainly quite justifiable.

On the other hand, if I were to observe your classroom and hand you an objective summary but withhold personal evaluation, you now have the data upon which to determine your own effectiveness.

In this case, if the ultimate question is "Did you accomplish your objective?" you say, "I sure did," because I did keep Joe and John quiet and did allow Marty and Sean to interact.

Now, based upon your methodological objectives the lesson was highly successful.

We have now established an entirely different relationship.

My role is to serve you by providing you with objective data upon which you can formulate evaluations.

Remember that it's your decision as to whether the particular technique was effective.

If you are satisifed with the results, fine.

If you're not satisfied with your instructional strategy then you can ask others to suggest changes; you might ask me for suggested modifications.

In either case we're operating at a much less threatening level.

Let's look at the organization of the five remaining units.

FORMAT

Introduction

Practice Session

Critique

Summary

In each case the unit is divided into an introduction, a practice session, a critique, and a summary.

The introduction includes the backround rationale and the description of each of the respective units.

The introduction then is followed by a practice session where the observer has the opportunity to either watch a simulated data-gathering session or actually practice gathering the data.

The accompanying manual includes the various data-gathering forms.

During the critique, the observational data obtained from the practice session is objectively summarized.

A brief review of the entire unit is then presented in the summary.

Highlights discussed in the critique may be analyzed as well as additional helpful suggestions being presented.

We'll now give you an overview of the remaining five units.

UNITS

1. Instructional Overview
2. Behavior Analysis
3. Question Directional Flow
4. Question Response Time
5. Response Reinforcement
6. Discipline and Verbal Control

These are: The Behavioral Analysis, The Question Directional Flow, The Question Response Time, The Response Reinforcement, and The Discipline and Verbal Control.

Because the format is essentially the same for all five units, we'll review in detail only number three, the Question Directional Flow. Now the others will then be reviewed more superficially.

END OF INTRODUCTION

REVIEW OF UNITS

SCENE I

Dr. Knight: The Question Directional Flow is a 15 minute unit during which procedures for recording the question interactions between students and teachers are presented.

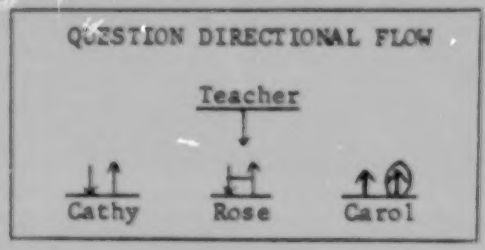
Ms. Kehoe: The unit begins with the usual introductions which describe a particular technique that can be used in a typical classroom situation.

Here, for example, we see a typical data recording key which is being described.

VIDEO INSERT

Dr. Knight: The questioning pattern key consists of a series of directional arrows.

Here are some examples:



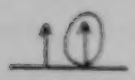
Teacher ↓ This symbol indicates the teacher asked a question of the group.

Cathy ↓ Here we find a question directed specifically to Cathy; however, Cathy did not respond.

Rose ↓↑ was asked a question to which she did respond.

Note the return arrow and the connecting bar.

↑ Here we have a student, Carol, who was not specifically called on, but who gave free or unsolicited responses to an open or group directed question.



Later this same student responded to a question directed to another pupil.

Note the interruption circle.

END OF INSERT

Dr. Knight: The manual, of course, includes a complete transcript of the entire video tape. You will also find reproductions of all the charts and diagrams.

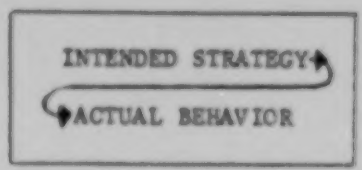
Ms. Kehoe: The underlying philosophy is continually stressed in the introduction of each unit as it is here.

VIDEO INSERT

Dr. Knight: The major purpose of this technique is to provide you with objective feedback regarding your instructional behavior.

Are you getting the type of verbal interaction you desire?

The only way to find out is to compare your intended questioning strategy with your actual classroom behavior.



If these two coincide, you obviously have the ability to translate your instructional objectives directly into behavioral reality.

END OF INSERT

Dr. Knight: One of the unique features of this particular practice session is the split-screen format that we use here and in some of the other units.

In this case, in the top half of the picture you see the actual classroom simulated action. In the bottom half the data being gathered by the on-camera observer is shown.

In situations like this where a seating chart is appropriate, you will note that the name corresponds directly to the position of that person in the class.

Ms. Kehoe: With the split screen, you, the audience, have the option of (1) just viewing the sequence, or (2) actually gathering data from the simulated classroom scene and comparing your data with that of the on-camera observer.

Dr. Knight: You may wish to cover the bottom half of the picture with a piece of paper, then practice gathering data, and only later compare the data that you have obtained with the chart in the critique section at the end of your manual.

Ms. Kehoe: The practice session, or for that matter any portion of a unit, may be replayed as often as necessary for additional help.

Dr. Knight: Following the practice session is the critique.

The critique, remember, is where the on-camera data is objectively summarized for you, the viewing audience.

Ms. Kehoe: Here's an example of what you can expect in a typical critique.

VIDEO INSERT

Questions that were directed to Debbie and Karin were answered by Susan and Patty, as indicated by the circled arrows.

Surprisingly, 42% of the students did not participate in this practice session.

END OF INSERT

Ms. Kehoe: The last segment found in most of the units is the summary.

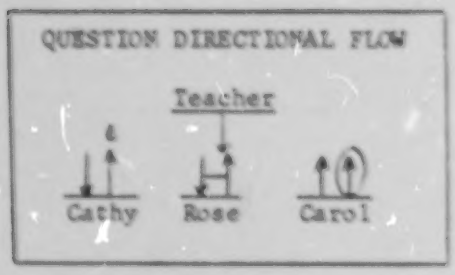
Here we have included additional comments that will help you to better understand that particular technique, in this case the Question Directional Flow.

Dr. Knight: In some situations, we offer suggestions for modifications of the technique in order to make the obtained data a little bit more appropriate for the particular situation as it pertains to the teacher.

Here is a particular case in point.

INSERT

If you want to modify your technique to gather additional data, then you can do so very easily.



An example: If you want to determine which responses are correct and which ones are incorrect, as well as the source and direction, all you have to do is, let's say, put a "C" over the top of the return arrow.

END OF INSERT

Ms. Kahoe: The idea, of course, is that the technique is basically very simple and therefore easily modified.

Dr. Knight: We'll now briefly review all the remaining units in this auto-tutorial package.

SCENE II

Dr. Knight: Unit 2 we called "Behavior Analysis." It's a relatively simplified but objective manner by which you can record the physical behavior of the students within your class.

Ms. Lawton: It involves a behavior key like the one shown here, and then you systematically record the observed behavior at specific time intervals.

BEHAVIOR KEY

A = Attention

C = Constructive Other

D = Daydreaming

T_t = Talking to Teacher

T_s = Talking to Student

W = Walking

Dr. Knight: Such a record provides the teacher with a relatively objective picture of the student behavior that occurred in conjunction with her instruction.

Ms. Lawton: If she's pleased with the observations then the more effective strategies and practices are reinforced. But, if she's displeased this gives her a basis to formulate modifications in her instructional strategies.

Dr. Knight: All this is explained in the introduction which is, in turn, followed by the practice session. This particular practice session emphasizes again the split-screen format where you see the simulated class in one half and the on-camera observer gathering data in the second half.

Ms. Lawton: The data is tallied in the critique and then presented objectively to the classroom teacher. We'll show you an example of the data analysis.

VIDEO INSERT

The center of attention during this previous session was with George, Beth, Susan, Paula, and Judy.

Chris		Dutch		Judy		Gregg	
A	A	A	A	A	A	A	A
A	A	A	A	A	A	W	A
A	A	A	T_t	A	A	A	A
T_s	A	T_s	T_t	A	A	A	A
Alan		**Susan**		**Paula**		**Lesley**	
A	T_s	A	A	A	A	A	D
T_s	A	A	A	A	A	A	A
T_s	A	A	A	A	A	D	D
T_s	T_s	A	A	A	A	D	A
Dan		**George**		**Beth**		**Mary**	
A	(D)	A	A	A	A	A	A
D	D	A	A	A	A	C	A
D	D	A	A	A	A	C	C
D	D	T_t	A	A	A	C	C

Mrs. Harding

Two students were daydreaming: Dan, approximately 88% of the time and Lesley approximately 50% of the time.

END OF INSERT

Dr. Knight: Following the critique is the usual summary which includes the various suggestions for appropriate modifications.

SCENE III

Dr. Knight: Our unit on "Discipline and Verbal Control" departs somewhat from the usual format used in other productions.

Here we'll present a series of science in-class discipline scenes with kind of an ongoing commentary rather than the usual introduction, practice session, critique, and summary.

Ms. Zinkowski: Our objective is to point out different discipline situations and to identify some observational techniques that can help you identify and to gather feedback regarding your own instructional strategies.

Dr. Knight: We'll then discuss each technique and how it can be used to gather data for you in your situation. In one scene we present a before and after sequence to demonstrate the effect of noting certain non-verbal communications.

Ms. Zinkowski: Another setting deals with various types of verbal emphasis. A short film clip of our "Paper Airplane" incident best demonstrates what you can expect.

VIDEO INSERT

...with an air-tight lid. We're going to have sand and gravel on the bottom, and then plants on the... BOTH OF YOU GROUPS, PAY ATTENTION! ...sand and gravel here--the gravel on the bottom, sand on the top, and the...ALL RIGHT, THAT'S IT! NOW IF YOU'RE NOT GOING TO PAY ATTENTION, YOU'RE NOT GOING TO KNOW WHAT TO DO THIS AFTERNOON. ...after you have the sand and gravel...

END INSERT

Dr. Knight: In the taped sequence that follows the one that you just observed, you will see that we make specific suggestions regarding observational techniques that can be used to provide this teacher with an objective record of her verbal behavior.

Dr. Knight: Janet, in the observational session that we did with you, what was your reaction?

Ms. Zinkowski: I was very surprised. It wasn't until after I had analyzed the data that was gathered during my session that I realized how many control comments I was actually directing to the class. It seems that I was really controlling the children more than I was actually teaching them.

Dr. Knight: And what now?

Ms. Zinkowski: Well, I definitely have to change my verbal strategies, and hopefully this will result in more instructional time.

Dr. Knight: Now our conversation along these lines could continue, but more appropriately it belongs in the post-session conference.

Ms. Zinkowski: As you pointed out earlier in this tape, the conferences between the observer and the teacher both prior to and following the data gathering sessions are particularly important.

SCENE IV

Dr. Knight: The "Question Response Time" unit focuses upon the amount of time a teacher waits for a student to respond to her questions.

Ms. Pritchett: Various studies have shown that by increasing the "wait time" the number of student responses will also increase.

Dr. Knight: This Unit 4 actually presents a simplified procedure for objectively recording data regarding the teacher's questioning skills.

Ms. Pritchett: Here's an example of what we mean.

VIDEO INSERT

Dr. Knight: Now here you'll see a sample of the question response time data

Notice the Q-4-R

Q-R-T SAMPLE
Q-4-R
Q-1-
"-3-R
Q-2-
Q-4-R

This means simply that a question was asked, the teacher waited four seconds, and a response was obtained.

In the second example, a question was asked, the teacher waited one second then repeated the question, waited three seconds, and got a response.

Then another question was asked; a two-second wait, and then the teacher terminated this sequence either by asking a different question, or by making some other statement and later asking a different question.

Now, the final sequence was a question, a four-second wait, and a response.

END INSERT

Dr. Knight: This insert was taken from the introductory portion of the unit.

Following the introduction we again have a practice session utilizing this split screen format.

Ms. Pritchett: You will see the on-camera observer recording data taken directly from the class in progress.

Dr. Knight: The sequence will then continue with an objective critique of the data.

Ms. Pritchett: Remember, this critique is an objective overview of what occurred in the previous practice session.

Dr. Knight: The Question Response Time Unit then concludes with a brief summary.

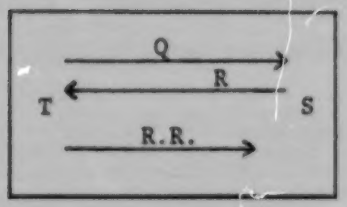
SCENE V

Dr. Knight: Our fifth unit is entitled: "Response Reinforcement." This production outlines a simplified technique for analyzing and recording how a teacher responds to a student's response to her question.

Ms. Paoli: The introductory comments emphasize the importance of effective verbal reinforcement as a factor in any classroom group discussion. Here is an example of the type of rationale presented in this introduction.

VIDEO INSERT

Now maybe this diagram will help me better explain the concept.



First the teacher asks a question. Then the student responds to that question. And finally, the teacher responds to the student's answer with some type of response reinforcement.

This response reinforcement may take the form of a compliment.

For example, "That was excellent, Joel"

END OF INSERT

Dr. Knight: The practice session is followed then by the usual critique where, of course, the data is objectively summarized for you, the viewer.

Ms. Paoli: Included in the summary are suggestions for a more extensive use of this technique, as well as simple modifications that might be more appropriate for your specific situation.

Dr. Knight: The summary, for example, makes mention of the use of a tape recorder.

Ms. Paoli: This is a quick and easy procedure for obtaining objective observational data from your classroom interactions without the assistance of a second party.

Dr. Knight: As a matter of fact, using the tape recorder can be applied in various units in this package.

END OF REVIEW OF UNITS

UTILIZATION

Ms. Kehoe: This package of six auto-tutorial units which includes this introductory tape can be used in a variety of settings.

Ms. Zinkowski: The units, however, are primarily designed to be used by individuals in self-instructional settings.

Ms. Kehoe: Inservice teachers, for example, may schedule materials at their own convenience, either during or outside regular school hours.

Ms. Zinkowski: In a preservice program, the package might be placed in a resource center where students could go, again at their own convenience, and acquire the various strategies without consuming valuable in-class time.

Ms. Kehoe: Here we see a student at an individual study carrol who has already viewed the tape once but is replaying the practice session for additional experience.

VIDEO INSERT

You'll note that she has covered the bottom half of the screen and, therefore, cannot see the data being collected by the on-camera observer.

Ms. Zinkowski: Once this session is complete, she will then compare the data she has obtained with that in the accompanying manual.

Ms. Kehoe: As a science methods instructor, you may wish to have the students utilize these instructional improvement strategies during the field experience component of your methods course.

Ms. Zinkowski: Here, for example, we see an instructor presenting the material to an elementary science methods class.

VIDEO INSERT

In this case, she is supplementing the video tape with her own comments in an attempt to make the material even more appropriate to her specific teaching situation.

Ms. Kehoe: Later the students will be divided into two-man teams with one member teaching while her partner gathers objective data.

They will then critique and summarize the data as outlined in each unit.

VIDEO INSERT

Ms. Zinkowski: To carry the theme a bit further, the units may be presented to even larger classes.

In this situation the units are being used as background orientation for a large lecture class.

Ms. Kehoe: The instructor here is also supplementing the unit dialogue with his own material.

Ms. Zinkowski: In this setting he has chosen not to use the student manuals but rather save them for future reference.

Ms. Kehoe: These units may be very effectively utilized in the student teaching situation.

Ms. Zinkowski: If the student teacher, her in-school cooperating teacher, and the university supervisor are familiar with these units, they all have a common basis upon which to communicate.

Ms. Kehoe: The objective, non-threatening nature of the data is most apparent here.

Lessons can be discussed in terms of: "These are the behaviors observed in your class. Now, how does this compare with what you're trying to accomplish?"

Ms. Zinkowski: And--are you satisfied with the results?

Ms. Kehoe: Here is an example of the units being used by a student teacher and her cooperating teacher.

In fact, the student teacher looks a bit familiar, doesn't she?

VIDEO INSERT

Ms. Zinkowski: We initially learned the various techniques from the auto-tutorial units and then would practice using them on each other.

Some of the data, for both of us, was most interesting.

Ms. Kehoe: Janet, how did your university supervisor fit into all this?

Ms. Zinkowski: Well, he first introduced us to the units and would use these and various other techniques to obtain whatever observational feedback I wanted.

Ms. Kehoe: It sure beats the subjective "You really did a good job teaching today."

Now, you've got specific information upon which to base any changes in your teaching strategies.

Ms. Zinkowski: This package is very easily used by school districts for inservice workshops, or as mentioned before, a self-improvement resource for individual teachers.

Ms. Kehoe: A more common application is found at the local level where selected schools may choose to put on their own staff workshops or to make the units available in their library for a specific period of time.

VIDEO INSERT

Ms. Zinkowski: This is often done where the school is also involved with the preservice training of teachers, e.g. tutoring programs, method block experiences, or student teaching activities.

Ms. Kehoe: Again, the common basis of non-threatening communications enters the picture.

The objective data gathering, non-judgmental philosophy also places the principal, and for that matter, the district supervisor's role as an observer in a more positive perspective.

Ms. Zinkowski: The application of this auto-tutorial package covers the complete continuum from individual inservice teacher improvement to large group instruction at the university level.

We hope it will be of service to you!

END OF UTILIZATION

UNIT 1

INSTRUCTIONAL OVERVIEW

In order of initial appearance:

Graduate Assistant

Sally Kehoe

Undergraduate Assistants

Cathy Lawton
Janet Zinkowski
Carolyn Pritchett
Rosemarie Paoli

University of Delaware
Newark, Delaware

Preparation of this video unit was supported by the National Science Foundation Grant, No. G. W. 6703 to Del Mod System, P.O. Box 192 Dover, Delaware 19901

UNIT 2

BEHAVIORAL

ANALYSIS

UNIT 2

BEHAVIORAL ANALYSIS

BY

CARLTON W. KNIGHT, II

SCIENCE EDUCATION CENTER
COLLEGE OF EDUCATION
UNIVERSITY OF DELAWARE
NEWARK, DELAWARE

PROJECT STAFF

Graduate Assistant

Sally Kehoe

Undergraduate Assistants

Cathy Lawton
Rosemarie Paoli
Carolyn Pritchett

Experimental Edition
Third Revision

PREFACE

Title: Unit 2, Behavioral Analysis

Prerequisite: Review Unit 1, Instructional Overview

Materials:
Unit 1 - Manual (for reference only)
Unit 2 - Manual
Unit 2 - Video Tape
Paper and Pencil
Extra Seating Charts
Television Monitor
Video Recorder (playback only)

Caution: Playback machine must be compatible with video tape. Check machine series, tape sizes, and playback limitations.

This unit is divided into the following four basic sections:

The Introduction (page 1) includes a description of the Behavioral Analysis and the background rationale supporting the use of the technique.

During the Practice Session (page 6) you will have the opportunity to watch data being gathered by an on-camera observer or to actually take Behavioral Analysis data by using the video demonstration class as your subjects.

A Critique (page 10) follows the practice session. Here an objective summary of the data gathered in the preceding sections is presented.

The Summary (page 12) includes a brief review of the entire unit and outlines suggestions for adapting the Behavioral Analysis to your specific classroom needs.

One of the advantages of this video unit is that you have the freedom to play and replay various segments. This is particularly helpful during the practice session where repeated viewing will improve your data-gathering efficiency. You may wish to construct additional copies of the practice session seating chart (page 5) and record the student behavior demonstrated by the on-camera class.

Prior to any observation, the teacher should explain to the observer specifically what type of behavioral data she would like to have recorded. Following the class, a post-observational conference will provide the opportunity for the observer to present the objectively summarized data to the teacher and, if requested, discuss the various aspects of the lesson.

One of the advantages of this and the other simplified observational techniques is the ease with which they can be modified. You are encouraged to incorporate any changes that will make the Behavioral Analysis more applicable to your own classroom situation.

K.K.

INTRODUCTION

The behavior analysis is one of a series of simplified classroom data gathering techniques.

An observer, by using this particular technique, can literally reconstruct a behavioral picture of what went on in your classroom during a given period of time.

Because we're often overly involved with our teaching, we often miss student behaviors which reduce our instructional effectiveness.

Now are we getting the type of student behavior we desire?

If we are, fine.

If not, some methodological changes may be in order.

But first, however, we've got to be aware of what actually is occurring in our classroom.

The behavior analysis is a relatively easy method of doing this.

B.A.

1. Seating Chart
2. Behavior Key
3. Time Interval

You need only three basic components: number one, you need a seating chart; two, a behavior key; and three, a time interval.

Now a seating chart is simply a map of the room.

Students may be identified by name, location, clothing, etc.

Behavior key is a system of using letters or symbols to represent certain types of student behavior.

Behavior Key

A = Attention
C = Constructive Other
D = Daydreaming
T_t = Talking to Teacher
T_s = Talking to Student
W = Walking

First we have "A" meaning "attention."

"C" constructive other - The student is not paying attention because he's doing, let's say, his math in science class.

He's doing constructively something other than intently watching you.

"D" for daydreaming.

"T_t" means the student is talking, but he's talking to the teacher.

"T_s" student is talking, but he's talking to another student.

"W" means a student is simply walking around.

Now, there's nothing special about this particular behavioral key.

You may add or subtract almost any category to fit your given situation.

The time sequence depends almost entirely upon the size of the class and the proficiency of the observer.

The larger the class, the longer it will take the observer to record each cycle.

In our situation, the observer should be able to make a complete cycle about every thirty seconds.

At the end of the instructional session, you'll have the opportunity to compare your particular data with that which was gathered on camera.

You may wish to make marginal notes recording significant events that occur within the class.

These may be used for reference later during the critique session, or in a follow-up conference with the teacher.

You're now ready to practice using the behavior analysis. Locate the seating chart and behavior key in your manual.

(See page 5.)

In this following practice session, you'll observe a small class.

Behavior Key	
A	= Attention
C	= Constructive Other
D	= Daydreaming
T_t	= Talking to Teacher
T_s	= Talking to Student
W	= Walking

Use the behavioral key to systematically record each student's activities.

One camera will remain on the student group, while simultaneously on split screen you'll see the observer actually coding pupil behavior.

You'll have the opportunity not only to practice gathering data, but to continually compare your results with the data being gathered by the on-camera observer.

Following this practice session, the observer will critique the obtained behavioral analysis.

She will identify behavior patterns and certain pockets of activity.

You may use this opportunity to compare your data summary with that of the on-camera observer.

Remember your analysis must be entirely objective.

The subjective interpretation is done by the instructor herself.

And now, the practice session.

END OF INTRODUCTION

BEHAVIORAL ANALYSIS

Seating Chart Practice Form

Chris	Dutch	Judy	Greg
Alan	Susan	Paula	Lesley
Dan	George	Beth	Mary

Ms. Harding

BEHAVIOR KEY

A = Attention

C = Constructive Other

D = Daydreaming

T_t = Talking to Teacher

T_s = Talking to Student

W = Walking

PRACTICE SESSION

Ms. Harding: OK, we've spent the last couple days working on labs, so today you get a break - you don't have to work on labs, but you are going to take some notes, so get out your notebooks, please.

The next topic that we're going to be working on in lab is something called density. This is another property of matter - we've already talked about the property of mass, or weight, and the property of volume; that is, how much space something takes up. Now, this particular property of density is going to make use of the two things we've already found out about. It's going to make use of the property of volume and the property of mass. What density is, is how much a given amount of material weighs. George?

George: What's that again? What's density?

Ms. Harding: What the density is is the mass of an object divided by its volume. OK. Now how did we find out how to find the volume of an object such as this wood block here? What was one of the methods we used for finding the volume of this wood block? George?

George: You stick it either in an overflow can and get the water that overflows

Ms. Harding: OK

George: in the graduated cylinder, or measure it by a ruler.

Ms. Harding: OK. I would either put it into the graduated cylinder, or I would measure it and find out. Which one do you think would be a better method for finding the volume of this block? Paula?

Paula: Probably - it really wouldn't make that much difference, but maybe if you measured it, it would be a little bit easier.

Ms. Harding: OK - it might be easier to measure it. Why might this be easier? I mean, is there a particular reason, Beth, that maybe a wood block wouldn't be easy to do by water displacement?

Beth: Because when you do the water displacement, the wood soaks up the water.

Ms. Harding: OK, it would soak up the water. Anything else that you can think of that would be wrong with putting it in water? Susan?

Susan: It would just be easier if you could measure it.

Ms. Harding: OK. It might be easier to measure it.

I was looking for one particular thing though. George?

George: You gotta push it down...

Ms. Harding: All right - the thing would float, so you wouldn't get a very accurate volume unless you held it under the water, and that might lead to some error in your thinking. How would you

find the mass of this block? How would you find the mass of something? How do you measure mass of something? Judy?

Judy: On a - um...(points)

Ms. Harding: Balance - right! This is a balance...it weighs things ...OK! The mass of the object would be determined just simply by sticking it on a balance or something. Hey - come on! You guys are going to have to start paying attention, because we're going to have a quiz on this in a couple of days...so come on ...Boy! OK, we're going to be finding out the density of a lot of different objects. One of the first things we're going to be working on is - liquids. OK. How would you find the volume of a liquid such as water? If we were going to find the density of water, how would you find its volume? Dutch, how would you find the volume of water?

Dutch: Volume?

Ms. Harding: Yes...

Dutch: You'd put it in a graduated cylinder.

Ms. Harding: OK, and then what?

Dutch: And then, you know, you'd measure it, like if you wanted 50, you'd fill it up to the 50 milliliters.

Ms. Harding: OK, fine. So 50 milliliters is the volume of the water. You simply have to read it off the cylinder.

Dutch: Right.

Ms. Harding: How would you find the mass of that liquid? Dutch - do you want to tell me?

Dutch: Yeah - uh - like you have it to 50 milliliters, and then you'd put it on the mass - on the scale, and then you would weigh it. And then you would weigh it - first you'd have to - first you'd have to put the cylinder on and weigh it itself.

Ms. Harding: OK, first of all, you'd have to find out how much the cylinder weighs. Right.

Dutch: And then you have to weigh them both together.

Ms. Harding: OK

Dutch: And then you, you know, then you subtract the mass of the cylinder from the mass of the cylinder and the water together, and then you find your answer.

Ms. Harding: Beautiful! OK. That's exactly what we're going to be doing when we do this next lab. But we're going to be finding the density of several different liquids. We're going to be finding the density of water, which is something that we compare all other liquids to, and in addition, we're going to be finding the density of several others. We're going to find vinegar, syrup, and alcohol - lots of things.

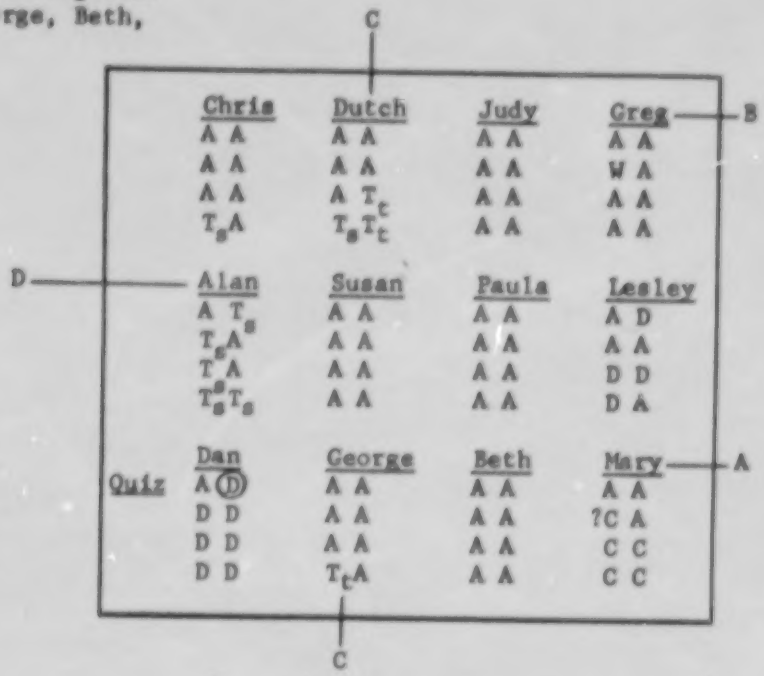
OK. After we work on finding the density of liquids, we're going to find the density of some different solid objects. Now - how would I go about finding the density of something, say like this nail? How would I find its density? First of all, what do I have to measure to find its density?

END OF PRACTICE SESSION

CRITIQUE

You now have the opportunity to repeat the previous session for additional practice or to compare your current data with the following critique.

The center of attention during this previous session was with George, Beth, Susan, Paula, and Judy.



Ms. Harding

Two students were daydreaming: Dan, approximately 88% of the time and Lesley approximately 50% of the time.

Mary is a very good example of "constructive other." (See "A" above)

The observer was not sure what Mary's intention was here, but it was later obvious that she was doing her math homework during science class.

There was only one example of "W," walking, Greg, who then threw a piece of paper away in the waste can. (See "B" above)

There are a few examples of students talking to the teacher: Dutch and George. (See "C" above)

These are very difficult to record, particularly when the responses are sporadic and brief.

Alan was talking approximately 63% of the time (See "D" above) to Chris and Dutch.

Notice the margin comment. (See Ann, Lesley, and Mary in above chart)

At this time Ms. Harding mentioned a forthcoming science quiz.

This immediately brought to attention several students: Alan, Lesley, and Mary.

The data here is obviously limited, but would be far more comprehensive during a regular science room classroom period.

END OF CRITIQUE

SUMMARY

Remember, your role is to provide the instructor with an objective record of student behavior during a given period.

However, the system is not infallible.

You may have difficulty deciding precisely what a student is doing, as in the case of Mary.

Chris	Dutch	Judy	Greg
A A	A A	A A	A A
A A	A A	A A	W A
A A	A T	A A	A A
T_s A	T_s T	A A	A A
Alan	**Susan**	**Paula**	**Lesley**
A T_s	A A	A A	A D
T_s A	A A	A A	A A
T_s A	A A	A A	D D
T_s T_s	A A	A A	D A
Dan	**George**	**Beth**	**Mary**
A D	A A	A A	A A
D D	A A	A A	?C A
D D	A A	A A	C C
D D	T_t A	A A	C C

Ms. Harding

She made a transition from paying attention to "constructive other."

Depending upon your position with the room, you may have difficulty observing and subsequently classifying behavior of the more distant students.

Also, remember that behavioral analysis is a systematic sampling of observations, and not a complete record of all behavior.

Certainly there are going to be occasions when the student is talking and you don't record it.

However, these occasions usually balance out in the final analysis.

One example of this discrepancy involved Chris. (See above chart)

Most of Alan's "student talk" was directed toward Chris and Dutch.

The observer consistently caught Alan talking, but when he reached Chris, the conversation had terminated, and Chris had returned to attention.

During a follow-up conference, the observer would most certainly point out this discrepancy to the instructor.

Marginal notes can also be quite interesting.

You may note how a student behavior responds to certain stimuli from the instructor.

Take our practice session.

Four students were inattentive most of the time, even though our instructor was manipulating equipment.

These students were Alan, Dan, Lesley, and Mary.

The pattern didn't change until the instructor mentioned a quiz.

This comment occurred during the fifth observational round.

Immediately after that, Alan, Lesley, and Mary temporarily returned to attention.

Dan obviously had other objectives.

As the instructor analyzing this data gathered from your class, you ask yourself, "Am I satisfied with student behavior, or not?"

If you're not pleased with your data, you now have objective information from which you can develop modifications in your teaching strategies.

These might be:

1. Change your seating pattern
2. Change your mode of presentation
3. Change your position in the room
4. Direct comments to students formerly ignored, etc.

Keep in mind, of course, that this is sample data, and would be far more extensive had it been taken in a regular class for a full period.

This behavioral analysis technique, like the others, can easily be modified to fit a variety of situations.

You may wish to record student behavior during lab, or say during a film.

Naturally, your recording key would change to describe student behavior that would be appropriate or inappropriate for that particular situation.

A brief preliminary conference is usually scheduled for the instructor to explain exactly what he wants the observer to note.

The observer, in turn, may wish to operationally define the behavioral categories that he intends to use.

Remember in all cases recording procedures should be simple and easy as possible.

END OF SUMMARY

UNIT 2

BEHAVIORAL ANALYSIS

Teacher
Barbara Harding
Central Middle School
Newark, Delaware

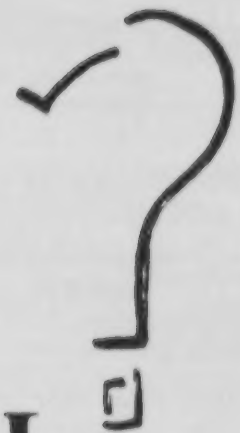
Critique
Sally Kehoe
University of Delaware
Newark, Delaware

Summary
Cathy Lawton
University of Delaware
Newark, Delaware

Preparation of this video unit was supported by the National Science Foundation Grant, No. G. W. 6703 to Del Mod System, P. O. Box 192 Dover, Delaware 19901

UNIT 3

QUESTION



DIRECTIONAL

FLOW

UNIT 3

QUESTION DIRECTIONAL FLOW

BY

CARLTON W. KNIGHT, II

SCIENCE EDUCATION CENTER
COLLEGE OF EDUCATION
UNIVERSITY OF DELAWARE
NEWARK, DELAWARE

PROJECT STAFF

Graduate Assistant

Sally Kehoe

Undergraduate Assistants

Linda Hiett
Cathy Lawton
Rosemarie Paoli
Carolyn Pritchett
Janet Zinkowski

Experimental Edition
Third Revision

PREFACE

Title:	Unit 3, Question Directional Flow
Prerequisite:	Review Unit 1, Instructional Overview
Materials:	Unit 1 - Manual (for reference only) Unit 3 - Manual Unit 3 - Video Tape Paper and Pencil Television Monitor Video Recorder (playback only)
Caution:	Playback machine must be compatible with video tape. Check tape size and playback limitations.

This unit is divided into the following four basic sections:

The Introduction (page 1) includes a description of the Question Directional Flow (QDF) and the background rationale supporting the use of the technique.

During the Practice Session (page 6) you will have the opportunity to watch data being gathered by an on-camera observer or to actually take QDF data by using the video demonstration class as your subjects.

A Critique (page 10) follows the practice session. Here an objective summary of the data gathered in the preceding section is presented.

The Summary (page 11) includes a brief review of the entire unit and outlines suggestions for adapting the QDF to your specific classroom needs.

One of the advantages of this video unit is that you have the freedom to play and replay various segments. This is particularly helpful during the practice session where repeated viewing will improve your data-gathering efficiency.

Prior to any observation, the teacher should explain to the observer specifically what type of data she would like to have recorded. Following the class a post-observational conference will provide the opportunity for the observer to present the objectively summarized data to the teacher and if requested discuss various aspects of the lesson.

One of the advantages of this and the other simplified observational techniques is the ease with which they can be modified. You are encouraged to incorporate any changes that will make the Question Directional Flow more applicable to your own classroom situation.

K.K.

INTRODUCTION

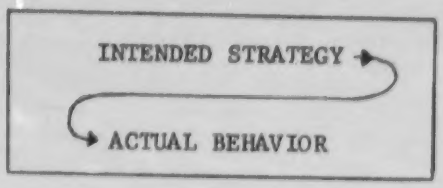
The Question Directional Flow is one of a series of simplified observational techniques that can be applied in any number of instructional settings.

The information gathered through the use of this particular technique will enable you to obtain an accurate record of the questioning patterns occurring within your classroom.

The major purpose of this technique is to provide you with objective feedback regarding your instructional behavior.

Are you getting the type of verbal interaction you desire?

The only way to find out is to compare your intended questioning strategy with your actual classroom behavior.



If these two coincide, you obviously have the ability to translate your instructional objectives directly into behavioral reality.

Most of us, however, find a discrepancy between our instructional intentions and our classroom behavior.

Once this discrepancy has been identified, however, we can take appropriate steps to alleviate it.

The Question Directional Flow is a simplified procedure for objectively recording certain phases of your questioning strategy.

Through its use, we can determine your pattern of questioning and the resulting student responses.

The recording table is relatively simple.

Q. D. F.
1. SEATING CHART
2. QUESTIONING PATTERN KEY

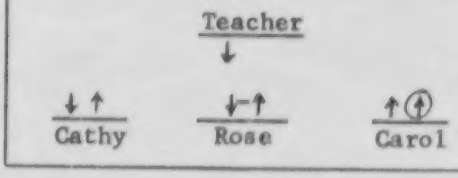
Your observer needs only: (1) a seating chart, and (2) a questioning pattern key.

The seating chart should identify the students by name or some other distinguishing characteristic: clothing, for example.

The questioning pattern key consists of a series of directional arrows.

Here are some examples:

QUESTION DIRECTIONAL FLOW



Teacher ↓ This symbol indicates the teacher asked a question of the group.

Cathy ↓ Here we find a question directed specifically to Cathy; however, Cathy did not respond.

Rose ↓-↑ was asked a question to which she did respond.

Note the return arrow and the connecting bar.

↑ Here we have a student, Carol, who was not specifically called on, but who gave free or unsolicited responses to an open or group directed question.

↑Ⓐ Later this same student responded to a question directed to another pupil.

Note the interruption circle.

↓↑ Cathy Remember Cathy was called on, but did not respond; however, she later answered a group directed question.

Now you're ready for some actual practice using the Question Directional Flow.

Please note the seating chart and the questioning pattern key in your manual.

In the coming practice scene you will observe a simulated questioning session.

Use the behavior key to record the Question Directional Flow pattern on your seating chart practice form.

One camera will remain focused on the student group, while, simultaneously, the second camera will show the observer recording the actual teacher - student interaction.

SEE PAGE 5 FOR PRACTICE FORM

QUESTION DIRECTIONAL FLOW

Teacher ↓

Cathy	Rose	Carol
↓↑	↓-↑	↑④

You will have the opportunity not only to practice gathering data, but to continually compare your data with that being recorded by the on-camera observer.

Following the practice session, the observer will briefly critique the obtained Question Directional Flow.

QUESTION DIRECTIONAL FLOW

Teacher ↓

Cathy	Rose	Carol
↓↑	↓-↑	↑①

This critique will identify specific flow patterns and quantify different types of interactions.

You might compare the on-camera analysis with your own data summary.

Remember, however, the final interpretation of the data is ultimately done by the teacher herself when she compares the observed patterns with her intended questioning strategies.

We will now join the practice session in progress.

END OF INTRODUCTION

SEATING CHART PRACTICE FORM

David	Patty	Jeff	Karin
Janet	Denny	Mary	Dave
Matt	Susan	Steve	Debbie

Mrs. Harding

QUESTION-DIRECTIONAL FLOW BEHAVIOR KEY

$\frac{\uparrow}{\text{Teacher}}$ - Question directed to group

$\frac{\text{Student}}{\uparrow}$ - Question directed to specific student

$\frac{\text{Student}}{\downarrow}$ - Student's response to group question

$\frac{\text{student}}{\uparrow\text{-}\downarrow}$ - Student's response to question directed to him

$\frac{\text{student}}{\textcircled{\downarrow}}$ - Student's response (interruption)

PRACTICE SESSION

Teacher: Mrs. Harding	OK-Today we're going to talk about the lab that we did yesterday with the acids and the bases - all of the different tests that we talked about. Matt, why did you have to label your test tubes in that experiment?
Matt:	Well, so that you'd know which one was which.
Mrs. H.:	OK-there were a lot of solutions, and you wanted to make sure you didn't get them mixed up. Mary, why did you have to rinse off your stirring rod in between each different test you made?
Mary:	Because, if you didn't, the acids and basis would all be mixed together.
Mrs. H.:	OK-you might not get an accurate reading then, would you? OK-let's look at some of the results we got with litmus paper. David - what result did you get when you added hydrochloric acid to the two different types of litmus paper?
David:	The blue litmus paper turned red, and the red litmus paper didn't change.
Mrs. H.:	No change at all with the red litmus paper, was there - OK - Jeff - what happened when you added ammonium hydroxide to the two different types of litmus paper?
Jeff:	On the blue litmus paper there was no change, and the red litmus paper changed to blue.
Mrs. H.:	OK. Fine. What happened - let's see - Mary - what happened with the water on the litmus paper? Did anything happen?
Mary:	No change.

Mrs. H.: No change was there. Let's look over all those different things that changed blue litmus paper to red. Can anybody tell me something that is similar with all of those different things? Anybody - Can anybody see anything that happened - or anything at all that those things have in common? Patty?

Patty: Well, in all of their formulas there's an "H" at the beginning.

Mrs. H.: OK, fine. All of those things that turned blue litmus paper to red have an "H" at the beginning. Let's look at all of the ones that have turned red litmus paper to blue. Anybody - do any of them have anything in common with each other? Steve?

Steve: They all have "OH" at the end.

Mrs. H.: OK - they all have "OH" - that's called "hydroxide." Anything that has a hydroxide in it is called a base. Anything that has a hydrogen in it - well, most things that have a hydrogen in it are going to be called an acid. OK - let's look at some of the other solution tests that we have for acids and bases. Jeff, what happened when you added phenolphthalein to sulfuric acid?

Jeff: It became a light, milky color, sort of.

Mrs. H.: A light milky color? Did anybody else - anybody - did anybody get something other than a light milky color happening in their - thing? Matt?

Matt: Well, mine stayed clear.

Mrs. H.: OK - we might have to check that solution of phenolphthalein. It should stay clear - but that's OK - if you got those results, that's what you should have on <u>your</u> data sheet. What happened when you added phenolphthalein to calcium hydroxide, Dave - David?

David: It turned bright pink.

Mrs. H.: OK - it was a real, bright, vivid pink, wasn't it? OK what if I gave you an unknown solution, and you added phenolphthalein to it, and it turned bright pink - What kind of a solution would that be--an acid or a base? Anybody - An acid or a base? Patty?

Patty: A base.

Mrs. H.: Right. Anything that turns pink with phenolphthalein would be a base. What if the solution remained clear - What kind of a compound would that be - an acid or a base? Anybody - Steve?

Steve: It would be an acid.

Mrs. H.: Right. It would be an acid if it <u>doesn't</u> turn pink in the presence of phenolphthalein. OK, we had another test solution called methyl red. It's a very complicated thing - but this had a little bit different type of test. Mary, what happened when you added methyl red to citric acid? What color was your solution?

Mary: It turned pink.

Mrs. H.: It was kind of a pink color. Matt, what happened when you added methyl red to potassium hydroxide?

Matt: It turned yellow.

Mrs. H.: OK. So we see in an acid- citric acid-stays kind of a red color and in a base it turn yellow. Now we had another solution called bromthymol blue. Debbie - what did bromthymol blue do when you added it to acetic acid?

Patty: I know - it turned yellow.

Mrs. H.: Right-it did turn yellow. Let's see - what happened when it turned - when you added bromthymol blue to ammonium hydroxide. Karen - can you tell us?

Susan: It turned blue.

Mrs. H.: It turned blue. OK, fine. Bromthymol blue will turn blue in the presence of hydroxide ions. Let's see - can anybody tell me why water did not change litmus paper either color? Anybody - Patty?

Patty: If you look at the formula, there's both an H and an OH. So I figure it must be both a base and an acid, or might not be either one.

Mrs. H.: OK - water does have both H - hydrogen - and OH - hydroxide - in it, and one of them kind of cancels the other one out, and so it's not really going to make any change on your litmus paper. OK. If I were going to ask for a working definition of an acid - and now we're talking about litmus paper now - Karen, could you tell me what would be a good working definition of an acid based on the litmus paper?

Susan: I know - from blue litmus, for acid it would turn red.

Mrs. H.: OK, fine.

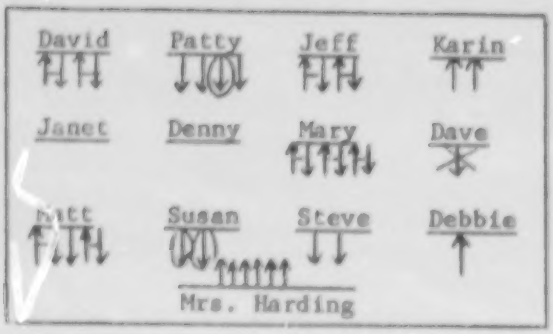
You have just finished your data gathering practice session.

At this point you have the option of repeating the tape for additional practice or you can summarize your own data and compare it to the following critique.

END OF PRACTICE SESSION

CRITIQUE

In the practice session of the Question-Directional Flow technique, Mrs. Harding asked a total of 18 questions, 6 of which were group-directed.



Three students accounted for all six of these questions (Patty, Matt, Steve).

Twenty-five percent of the students answered only questions directed specifically to them - David, Jeff, Mary.

Three students did not respond to any questions, nor did the teacher direct any to them (Janet, Denny, Dave).

Take note of the directed question to Dave which is crossed out. This question was originally intended for David.

Similarity of names may lead to mistakes which only practice of the technique will remedy.

Questions that were directed to Debbie and Karin were answered by Susan and Patty, as indicated by the circled arrows.

Surprisingly, 42% of the students did not participate in this practice session.

Fifty percent of the students were not specifically asked questions, although three did participate.

Note that Susan's responses were limited strictly to interruptions.

END OF CRITIQUE

SUMMARY

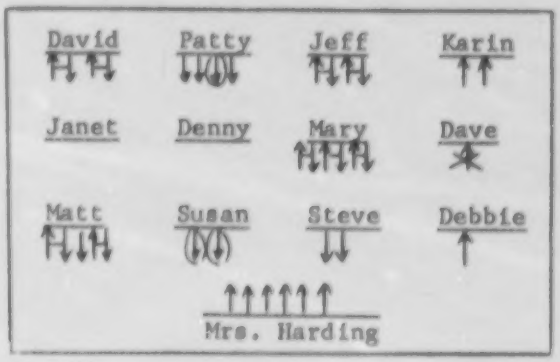
This critique was, as yours should have been, highly objective.

Remember it's not your role as the observer to subjectively interpret the data. That responsibility rests solely with the instructor, for only she knows whether the resulting data pattern really reflects what she was trying to accomplish.

There are two situations in particular that point out this problem.

We'll take a look at them.

In situation number one, Susan twice interrupted Karin.



Now was that an example of good instructional procedure, or was it poor teaching?

Let's take a look at the tape.

PRACTICE SESSION INSERT

Mrs. H. - OK - If I were going to ask for a working definition of an acid - and now we're talking about litmus paper - Karin, could you tell me what would be a good working definition of an acid, based on the litmus paper?

Susan - I know - from blue litmus paper, for acid it would turn red.

Mrs. H. - OK, fine.

Did you catch that last-minute positive reinforcement given by the instructor to Susan's reply?

Was this designed to encourage future interruptions, or was it just a force of habit - and maybe a poor habit indeed.

Now it's not your point, the observer, to determine this.

The instructor has to analyze it and keep in mind exactly what her intentions were.

The second situation is a little bit more clear-cut.

Take a look at the second row of the seating chart.

You will notice that three of the four students were totally ignored.

Now if the instructor's objective was to involve all students in the discussion question interaction, then obviously she failed to accomplish her objectives.

On the other hand, if she specifically intended to ignore these three students, she was quite successful.

Now why would she want to ignore those three students?

Very simply, maybe they had, in past periods, been monopolizing conversations, so she determined this period to totally ignore them, hoping other students would then come forth.

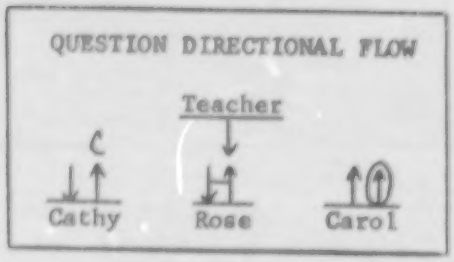
Again, the decision regarding the effectiveness is hers.

When you gather the Question Directional Flow in the regular classroom, you'll find the going considerably easier.

In your classroom, you'll find the sound direction and depth perception much easier to figure out.

The simplicity of this particular technique is the key to the entire operation.

If you want to modify your technique to gather additional data, then you can do so very easily.



An example: If you want to determine which responses are correct and which ones are incorrect, as well as the source and direction, all you have to do is, let's say, put a "C" over the top of the return arrow.

Specific example: A group question was asked; Cathy responded, giving the correct answer; thus, the "C".

A direct question was asked of Rose, who responded incorrectly; thus, no "C".

So therefore you gave the additional data required down on the chart.

Now, check your manual for additional comments and suggestions regarding further modifications.

END OF SUMMARY

QUESTION DIRECTIONAL FLOW

Teacher

Barbara Harding

Central Middle School

Newark, Delaware

Observer

Cyndi Funk

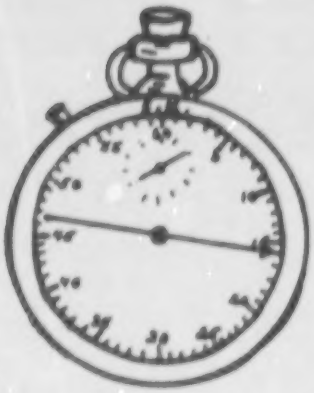
Heritage Elementary School

Stanton, Delaware

Preparation of this video unit was supported by the National Science Foundation Grant, No. G. W. 6703 to Del Mod System, P.O. Box 192 Dover, Delaware 19901

UNIT 4

QUESTION RESPONSE



TIME

UNIT 4

QUESTION RESPONSE TIME

BY

CARLTON W. KNIGHT, II

SCIENCE EDUCATION CENTER
COLLEGE OF EDUCATION
UNIVERSITY OF DELAWARE
NEWARK, DELAWARE

PROJECT STAFF

Graduate Assistant

Sally Kehoe

Undergraduate Assistants

Cathy Lawton
Rosemarie Paoli
Carolyn Pritchett

Experimental Edition
Third Revision

PREFACE

Title: Unit 4, Question Response Time

Prerequisite: Review Unit 1, Instructional Overview

Materials:
Unit 1 - Manual (for reference only)
Unit 4 - Manual
Unit 4 - Video Tape
Clock or Watch with Second Hand
Paper and Pencil
Television Monitor
Video Recorder (playback only)

Caution: Playback machine must be compatible with video tape. Check tape size and playback limitations.

This unit is divided into the following four basic sections:

The Introduction (page 1) includes a description of the Question Response Time (QRT) and the background rationale supporting the use of the technique.

During the Practice Session (page 7) you will have the opportunity to watch data being gathered by an on-camera observer or to actually take QRT data by using the video demonstration class as your subjects.

A Critique (page 12) follows the practice session. Here an objective summary of the data gathered in the preceding section is presented.

The Summary (page 13) includes a brief review of the entire unit and outlines suggestions for adapting the QRT to your specific classroom needs.

One of the advantages of this video unit is that you have the freedom to play and replay various segments. This is particularly helpful during the practice session where repeated viewing will improve your data-gathering efficiency.

Prior to any observation, the teacher should explain to the observer specifically what type of data she would like to have recorded. Following the class a post-observational conference will provide the opportunity for the observer to present the objectively summarized data to the teacher and, if requested, discuss various aspects of the lesson.

One of the advantages of this and the other simplified observational techniques is the ease with which they can be modified. You are encouraged to incorporate any changes that will make the Question Response Time more applicable to your own classroom situation.

K.K.

INTRODUCTION

The Question Response Time is another of our simplified objective data-gathering techniques that can be used in practically every science classroom.

Our objective here is to simply record the amount of time each teacher waits for a student to respond to a question she asked of the group.

Now this resulting information will be particularly valuable to those of us who are interested in improving our question-interaction type skills.

Remember that during the introductory unit I pointed out three common questioning errors that often occur among science teachers. These are:

1. Number one, many of the questions teachers ask are really not designed to be answered.

   I'll give you an example: "Sam, would you please sit down?"

   Now, what I really meant was "Sam, would you please sit down!"

   It's a little thing, but if instances like this continue to occur, then you're conditioning the students to continually disregard your questions.

2. Insufficient waiting time is our second poor instructional habit.

   This occurs when we don't give the students enough time to respond to the questions that we ask.

   Because remember, you give a question; the student must interpret the question, think of an answer, and give that answer.

If we're upset by time or silence and we want to keep things moving, very often we'll cut in or cut off the student so that he doesn't have sufficient time to formulate his answer.

3. The third point is that we often wait longer for a good student to reply than we do a poor student.

What's the rationale behind this? It may be that we know if we give "Smart Sam" enough time, he'll come up with the right answer.

But on the other hand, "Slow Joe"-- he can take all day and he's never going to get the right response, so why waste time?

Now all of these poor practices condition particularly the slower student to not respond to as many questions as he might otherwise do.

If I, as a science teacher, am aware of the questioning patterns, in terms of wait time, that are going on in my class, I can modify my instructional strategies accordingly.

Let's say that I'm asking a goodly number of questions but I'm not getting that many responses.

OK, why? Is it because maybe I'm not waiting long enough for student reply?

Or possibly I find myself unnecessarily repeating myself?

Could it be again that I'm disturbed by the silence when I wait for a response, so I misinterpret this as lack of understanding on the student, so before he can answer I repeat the question.

The data gathered here by the question-response time will help you and me identify which of these instructional strategies I might be doing or not doing.

To record this data, you need two basic things.

Q.R.T.

1. Verbal Key

   Q = Question
   " = Repeated Question
   R = Response

2. Timer

Number one, you need a verbal key, and secondly, you need a timer.

The verbal key is simply:
Q stands for question. (") ditto marks mean a question is repeated, or sometimes the teacher may just call a student's name to redirect the question, but implying that the question is, in fact, repeated, so therefore the ditto marks, and an "R" meaning response.

You may mentally count the seconds, or you can use a watch with a second hand. But in either case, the wait time is then recorded within the verbal key.

Here you'll see a sample of the question response time data. Notice the Q-4-R

Q-R-T SAMPLE

Q-4-R
Q-1
"-3-R
Q-2-
Q-4-R

This means simply that a question was asked, the teacher waited four seconds, and a response was obtained.

In the second example, a question was asked, the teacher waited one second then repeated the question, waited three seconds, and got a response.

Then another question was asked; a two-second wait, and then the teacher terminated this sequence either by asking a different question, or by making some other statement and later asking a different question.

The final sequence was a question, a four-second wait, and a response.

Now, remember that the observer does not attempt to record the time interval between questions. You only record the questions, the wait time, and the student response if there is any.

Although this particular technique can be used at any and all levels, we're doing to have the opportunity here to practice it with a second grade class.

The split screen format will allow you to view the class, hear the group interaction, and practice recording your data and comparing it with the on-camera observer.

Following the completion of this practice session, be sure to analyze your data.

This analyzation will, of course, be objective.

Remember that - always be objective.

If this were a regular class, then the observational data that you gather and then analyze would later be given to the instructor for further interpretation, because she then would ask herself "Is this the type of questioning pattern that I want to occur in my class?"

If her answer is no, then she now has some objective data with which to build or improve her instructional strategies.

And now, let's sit in on our second-grade practice session.

END OF INTRODUCTION

QUESTION RESPONSE TIME

Practice Form

1._____	9._____	17._____
2._____	10._____	18._____
3._____	11._____	19._____
4._____	12._____	20._____
5._____	13._____	21._____
6._____	14._____	22._____
7._____	15._____	23._____
8._____	16._____	24._____

****

QUESTION RESPONSE TIME KEY

Q = Question

" = Repeated Question

R = Response

Examples: Q-3-R
Q-1
"-2-R

PRACTICE SESSION

Ms. Lawton: (Teacher) OK, boys and girls, as you know, we've been talking about the four seasons of the year. Perry, what season are we in right now?

Perry: Fall.

Ms. Lawton: Fall - OK. I think we all know many things about fall. The leaves turn, and they fall off the trees; and Halloween comes in fall. The weather gets cooler. What season comes after fall? It's almost done - Helena, do you know the next season?

Helena: Winter.

Ms. Lawton: Winter. All right - let's talk a little bit about winter time. Buddy, do you see any animals in winter?

Buddy: (No response)

Ms. Lawton: Ken, do you see any animals out in the winter time?

Ken: No.

Ms. Lawton: None? I'm sure there are some - can anybody think - Howard, what animals do you see in the winter?

Howard: Deer.

Ms. Lawton: OK, we see deer in the winter - they may be going through the woods, or if some people live out in the country they may even come into their backyards. Randy, what other animals do you see in winter?

Randy: Some birds.

Ms. Lawton: Some birds stay in the winter time. All right, how about - some animals don't come out in the winter; and they're doing something very special. Donna, do you know what that is?

Donna: Yeah, squirrels.

Ms. Lawton: Squirrels are out in the winter time, though. What about the animals that aren't out - Kenny, what are they doing?

Kenny: Hibernating.

Ms. Lawton: Hibernating. OK - who can think of an animal that hibernates? Now don't say it - think really hard - Curt?

Curt: A bear.

Ms. Lawton: A bear. That's a very good example of hibernation. Sometimes I think it would be fun if we could hibernate 'cause it gets so very cold in the winter, don't you think? What sports do we play in the wintertime - Howard, what sports do you do?

Howard: I play - skiing.

Ms. Lawton: OK, skiing - that's a very, very good sport. What is very important that we have in the wintertime to go skiing? Tracy?

Tracy: (No response)

Ms. Lawton: What is the most...

(Girl): Snowpants.

Ms. Lawton: Snowpants, OK. What is the thing about the weather that's so important when we go skiing - Curt?

Curt: It has to be not so deep a snow.

Ms. Lawton: OK. It has to be not so deep and we have to have snow, right? Snow is really a neat thing, isn't it? Don't you have fun in the snow? Robby, what else can you do in the snow besides go skiing?

Robby: You could...slide down the hills.

Ms. Lawton: Slide down the hills - that's a good thing to do. Do you think you would slide down the hills with your body? Rosemarie, what would you use to slide down the hills with?

Rosemarie: A sled.

Ms. Lawton: With a sled. OK, now I can think of another thing I can do in the snow. Perry, can you think of another thing?

Perry: I got a picture of a snowmobile - make a snowman.

Ms. Lawton: Make a snowman. That's exactly what I was thinking about. OK, what season comes after winter-time, Donna?

Donna: Spring.

Ms. Lawton: Spring, OK. What are some of the signs - think about it, winter's over now, we're going into spring. What do you see outside that tells you its spring? Randy, what do you see outside that tells you it's spring?

Randy: The grass gets greener.

Ms. Lawton: The grass gets greener. That's a very good observation. How about we were just talking about animals - would you see any animals in the spring, do you think? Howard?

Howard: The birds come back.

Ms. Lawton: The birds come back. OK, the birds come back. How about plants - do we have any new plants in the springtime? Think about plants and things that grow. Michael, what plants do we see in spring?

Michael: Flowers - and buds on trees - and bees - yuk...

Ms. Lawton: OK, that's very good. What's the weather like? Robby?

Robby: Like kind of cool, and cold and hot.

Ms. Lawton: Right, right. It's sort of an in-between season, right? So spring is in between winter and - what's the other one that it's in between, Ken? Winter and what?

Ken: Summer.

Ms. Lawton: OK, summertime is fun time, right? No school time, and vacation time. Perry, do you ever go on a vacation, and where do you go?

(Other kids): I go on good vacations. I know where I'm going to go this summer.

Perry: We go swimming.

Ms. Lawton: Perry goes swimming. OK, I guess that could be considered a vacation. Does anybody travel anywhere to go on a vacation? Curt, where do you go?

Curt: North Carolina.

Ms. Lawton: North Carolina. What do you do in North Carolina?

Curt: Go fishing.

Ms. Lawton: Go fishing. That's a very popular sport in the summer-time, isn't it? We can eat the fish - I'm sure that's lots of fun.

END OF PRACTICE SESSION

CRITIQUE

There were a total of twenty-four questions asked during the preceeding practice session. Of these, only one, number three, was unanswered.

1.	Q-1-R	9.	Q-1-R	17.	Q-1-R
2.	Q-1-R	10.	Q-5-R	18.	Q-1-R
3.	Q-3	11.	Q-4-R	19.	Q-1-R
4.	"-2-R	12.	Q-1-R	20.	Q-2-R
5.	Q-1-R	13.	Q-3-R	21.	Q-2-R
6.	Q-1-R	14.	Q-1-R	22.	Q-3-R
7.	Q-1-R	15.	Q-2-R	23.	Q-1-R
8.	Q-1-R	16.	Q-1-R	24.	Q-2-R

The question was repeated, though, in number four and a correct response solicited.

The average wait time for all responses was 1.75 seconds.

Note, though, the rapid responses given to the questions asked in numbers five through nine.

The wait time for the response here was only one second each.

In fact, 33% of the total responses occur within one second.

There are, though, two questions, numbers ten and eleven, whose response required a wait time in excess of three seconds.

Considered in its entirety, this practice session was rapid-fire questioning, with the children rising to meet the occasion with quick responses.

END OF CRITIQUE

SUMMARY

The question-response time practice session provided only limited data.

Within this brief segment an overall pattern of question-rapid response was obvious.

Had the session been longer, undoubtedly other patterns would have occurred.

If our teacher's objective was to obtain responses for most of her questions, she definitely succeeded.

If, however, she was interested in the quality and source of responses, the current data tells us little.

Here, as with the other observational techniques, simple modification will provide more detailed information.

Should you wish to know which responses were correct, you might identify these with a circle "R".

Q-R-T SAMPLE

Q-4-R
Q-1
"-3-R S.K.
Q-2
Q-4-R

What would it mean, for example, if most of the rapid responses were incorrect, and the longer-wait answers correct?

All kinds of inferences could be made in this situation.

Or, if you would like to know the source of each response, put the student's initial after each R.

By combining both of these modifications, the teacher can determine the source and quality of each response in addition to rate of response and the wait time.

She may discover whenever certain students give rapid responses, their answers are incorrect.

If this occurs, she has firm data from which she can make definite methodological adjustments.

A data-recording problem may occur when a teacher asks a question, waits, then calls a student's name, waits again, and eventually obtains a response.

Exactly where and when do you begin timing? It really makes no difference as long as the teacher and the observer both understand exactly what is being timed.

The question-response time data can also be obtained by using an audio-tape recorder.

A teacher may leave the audio tape on during a class and later privately record and analyze the data.

The emphasis remains, once again, on obtaining objective classroom feedback.

Check your manual for additional information regarding the question-response time.

END OF SUMMARY

UNIT 4

QUESTION RESPONSE TIME

TEACHER

Cathy Lawton

University of Delaware
Newark, Delaware

CRITIQUE

Rosemarie Paoli

University of Delaware
Newark, Delaware

SUMMARY

Carolyn Pritchett

University of Delaware
Newark, Delaware

Preparation of this video unit was supported by the National Science Foundation Grant, No. G. W. 6703 to Del Mod System, P. O. Box 192 Dover, Delaware 19901

UNIT 5

RESPONSE

REINFORCEMENT

UNIT 5

RESPONSE REINFORCEMENT

BY

CARLTON W. KNIGHT, II

SCIENCE EDUCATION CENTER
COLLEGE OF EDUCATION
UNIVERSITY OF DELAWARE
NEWARK, DELAWARE

PROJECT STAFF

Graduate Assistant

Sally Kehoe

Undergraduate Assistants

Cathy Lawton
Rosemarie Paoli
Carolyn Pritchett

Experimental Edition
Third Revision

PREFACE

Title:	Unit 5, Response Reinforcement
Prerequisite:	Review Unit 1, Instructional Overview
Materials:	Unit 1 - Manual (for reference only) Unit 5 - Manual Unit 5 - Video Tape Paper and Pencil Television Monitor Video Recorder (playback only)
Caution:	Playback machine must be compatible with video tape. Check tape size and playback limitations.

This unit is divided into the following four basic sections:

The Introduction (page 1) includes a description of the Response Reinforcement and the background rationale supporting the use of the technique.

During the Practice Session (page 6) you will have the opportunity to watch data being gathered by an on-camera observer or to actually take Response Reinforcement data by using the video demonstration class as your subjects.

A Critique (page 10) follows the practice session. Here an objective summary of the data gathered in the preceding section is presented.

The Summary (page 12) includes a brief review of the entire unit and outlines suggestions for adapting the Response Reinforcement to your specific classroom needs.

One of the advantages of this video unit is that you have the freedom to play and replay various segments. This is particularly helpful during the practice session where repeated viewing will improve your data-gathering efficiency. A Response Reinforcement sample practice form is found on page 5.

Prior to any observation, the teacher should explain to the observer specifically what type of data she would like to have recorded. Following the class a post-observational conference will provide the opportunity for the observer to present the objectively summarized data to the teacher and, if requested, discuss various aspects of the lesson.

One of the advantages of this and the other simplified observational techniques is the ease with which they can be modified. You are encouraged to incorporate any changes that will make the Response Reinforcement more applicable to your own classroom situation.

K.K.

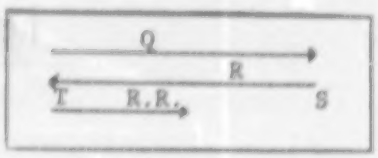
INTRODUCTION

The Response Reinforcement is a simplified observational technique that can be used in almost any science classroom. This technique is to be used to gather data regarding the verbal reinforcement given to students following their response to a teacher's question.

Now let me clarify what I mean by response reinforcement data.

You simply record verbatim the first five to seven words of the teacher's response to a student's answer to her original question.

Maybe this diagram will help me explain the concept.



First the teacher asks a question. Then the student responds to that question. And finally, the teacher responds to the student's answer with some type of response reinforcement.

This response reinforcement may take the form of a compliment.

For example, "That was excellent, Joe!"

It may be a brief positive comment followed by another question. For example, "Good! Now what's the next element?"

Or the teacher may choose to ignore the previous answer entirely and start with kind of a new line of thought.

Another example: "Joe, what's H_2O?" Joe says, "Water," And then, instead of responding to Joe, I immediately lead into another question by saying, "Does anyone know what CO_2 is?" Now this last statement was a response reinforcement even though the teacher ignored poor Joe.

An observer gathering data will once again record only the first 5 to 7 words of all response reinforcements during a given period.

Here also we look for patterns. Now what type of patterns? Well, anything that might detract from our instructional effectiveness.

As you know, our extraverbal communications are just as important as our verbal comments.

Does the science teacher that continually uses a variety of positive reinforcers have the same rapport reaction with the students as someone who uses continually the same "OK," "Good answer," "Good response," "OK, fine."

Now, what about the subtle undercut? I'm not talking about the ones that happen once in a while, but when they become too frequent, or directed toward a specific student too often, it may become a problem.

Example: "Good answer, Joe, but it's not what I wanted." "Fine, Joe, but maybe Sam can give us the right answer." "Thanks, Joe, but better luck next time."

Now pretty quickly, Joe is going to figure out that he's continually being had, and he's going to decide that about the only way he can keep from being put down is to keep quiet.

Now please remember that any of these and similar instances are not problems in themselves, but only if a continual pattern keeps occurring.

The response reinforcement data objectively says, "Here, this is what happened in your class."

You may be surprised, you may not, you may have some of these habits and just really didn't recognize that you had them.

But never fear, because your students will identify them quite quickly.

In the following classroom segment, see if you can catch all of the response reinforcements given by the teacher.

It may take some close listening and you may want to repeat the practice session a couple of times, but keep after it.

R.R.
Record Verbatim
First 5-7 words of
Teacher's Response

Remember--we're only after the first 5-7 words. If a cut down or another pattern emerges, it will usually show up here, so don't try to write down the entire teacher's response.

When you're finished objectively critiquing your data, you want to then pass it on to the instructor. But remember--when you're critiquing, you do it objectively. It's the instructor's role to interpret it beyond that point.

Once again, we'll use the split screen format so that you can observe the teacher-class interaction and simultaneously watch the on-camera observer. Compare your data that you're gathering with that of the on-camera observer as she progresses through the lesson.

Now, at this point, check the appropriate response-reinforcement practice page in your manual, and we're ready to begin.

See page 5 for practice form

END OF INTRODUCTION

RESPONSE REINFORCEMENT

PRACTICE FORM

1. _____ 10. _____
2. _____ 11. _____
3. _____ 12. _____
4. _____ 13. _____
5. _____ 14. _____
6. _____ 15. _____
7. _____ 16. _____
8. _____ 17. _____
9. _____ 18. _____

* *

KEY: RECORD ONLY FIRST FIVE TO SEVEN WORDS OF TEACHER'S RESPONSE TO A STUDENT'S RESPONSE.

PRACTICE SESSION

Ms. Good (Teacher): Boys and girls, we're having some very good ideas this morning. Let's see if we can't think of some different ways in which we hear sound. Who else has an idea about something which makes a sound that you've heard--Michael?

Michael: A horse.

Ms. Good: Could you describe the sound that the horse makes?

Michael: It doesn't make a real loud sound or a real soft sound--it's a medium sound.

Ms. Good: OK - that was a very good idea, Michael. Now let's think of some more sounds that we've heard. Buddy?

Buddy: The wind.

Ms. Good: Could you tell us a little bit about the sound the wind makes?

Buddy: (He makes sound)

Ms. Good: That sounds just like wind, Buddy. Very good. OK, let's think of some more ideas of different sounds we've heard. Randy, could you think of something?

Randy: (No response)

Ms. Good: Well, you think about it, and we'll come back to you in just one minute. Kenny, could you think of a sound.

Kenny: A dog.

Ms. Good: OK - what kind of a sound does a dog make?

Kenny: Well, sometimes he makes a loud, sometimes he barks soft.

Ms. Good: Do you have a dog, Kenny? (He nods) What kind of a sound does your dog make?

Kenny: A loud.

Ms. Good: OK...All right, let's get some more different ideas about sounds that we've heard. How about Kirk - could you think of a sound that you've heard?

Kirk: A cat.

Ms. Good: OK - what does a cat say?

Kirk: Meow.

Ms. Good: OK. We're getting a lot of animal sounds. Let's see if we can think of some different types of sounds that nobody else has thought of. Tracy?

Tracy: Someone crying.

Ms. Good: OK. Rosemarie?

Rosemarie: Someone laughing.

Ms. Good: I think Buddy has a good one--what's your idea, Buddy?

Buddy: When you get a flat it goes (makes sound).

Ms. Good: My! Buddy is so good at making sounds. We have a flat tire sound, now let's think of some more. How about Michael?

Michael: Chains rattling.

Ms. Good: OK--when do you think you might hear a sound like that?

Michael: Around Halloween.

Ms. Good: I'll just put chains. OK, how about another sound--Robby could you think of a sound?

Robby: A car.

Ms. Good: What kind of a sound does the car make?

Robby: (Makes sound)

Ms. Good: Robby's a good sound maker also. How about some more different sounds? Could you think of a sound, Cindy?

Cindy: Doorbells ringing.

Ms. Good. That's a good answer. Some more sounds--Kirk?

Kirk: A motor bike.

Ms. Good: What kind of a sound does a motorbike make?

Kirk: A loud one.

Ms. Good: OK.

Ms. Good: Now let's think of a few more sounds. We're getting some really good ideas. Donna?

Donna: (Answer unclear)

Ms. Good: Well, that's a good idea, but let's see if we can think of some more different types of sounds. Kenny?

Kenny: A lamb.

Ms. Good: What kind of a sound does a lamb make?

Kenny: Baa.

Ms. Good: We're getting an awful lot of animal sounds. Could we think of any other sounds? Perry?

END OF PRACTICE SESSION

CRITIQUE

Now you have the option of repeating the previous session for additional practice, or comparing your results with the following critique.

1. Could you describe the sound	10. OK...
2. OK, that was a very good idea	11. Buddy is so good at making
3. Could you tell us a little bit	12. OK, when do you think you
4. That sounds just like	13. What kind of a sound
5. Well, you think about it and	14. Robby's a good sound maker
6. OK, what kind of a sound does	15. That's a good answer
7. Do you have a dog Kenny	16. What kind of a sound does
8. OK	17. That's a good idea, but let's
9. OK, what does the cat say	18. What kind of a sound does

You will note that the phrase "OK" was used as the initial word in one-third of the response reinforcements.

This occurred in number two, six, eight, nine, ten, and twelve. In fact, it was the only reinforcement used in numbers eight and ten.

Another pattern response appearing was "What kind of a sound does..." This occurred in numbers six, thirteen, sixteen, and eighteen.

The teacher asked the students to elaborate upon their answers in approximately seventeen percent of the reinforcements.

For example, in number one she asked, "Could you describe the sound;" in number three, "Could you tell us a little bit;" and in number twelve, "OK--when do you think."

A cut-down occurred only once during the exchange.

This was in number seventeen when she said, "That's a good idea, but..."

Two students--Buddy in number eleven and Robby in number fourteen--were reinforced specifically by name. Kenny was mentioned, but only as part of a question in number seven.

Calling a student by name adds a bit of a personal note to the positive reinforcement.

END OF CRITIQUE

SUMMARY

We want to emphasize that the data is to be interpreted objectively by the observer, and then given to the teacher for a more detailed interpretation.

The teacher must then consider this information in conjunction with her intended teaching strategies.

A pattern of responses, for example, the "OK's" and the "What kind of sound does," are not necessarily poor response reinforcements.

However, if the teacher feels that a repetitive pattern may have a negative effect on the student responses, she may wish to verbally reinforce them in another manner.

Have you ever sat in the back of a classroom and counted the number of "OK's" a teacher stated during a given period of time?

Distracting, wasn't it?

Some students may be turned off by a series of "OK's"; others may not.

In a rapid exchange of questions, it may be impossible to record more than the first three or four words of the responses.

If you anticipate a class of this nature, you may wish to have two observers--for example, two student teachers, with each recording every other response reinforcement.

Or you might simply obtain a tape recorder and let it run during the class, gather your own data, and later you can make a transcript of your own response reinforcements.

The tape recording procedure is particularly advantageous in a rapid fire question-response sequence, where classroom observers are not available, or where additional privacy is desired.

This technique can also be modified to meet your specific needs. For example, you may wish to identify the students to whom each response reinforcement was directed.

This could be accomplished by noting the student's name or initials next to the proper response.

There are some students who elicit from you recurring types of verbal reinforcements.

Remember--the whole intent here is to give you objective information which you can use to modify your own teaching strategies.

END OF SUMMARY

UNIT 5

RESPONSE REINFORCEMENT

Teacher

Rena Good
Christiana-Salem Elementary School
Newark, Delaware

Critique

Carolyn Pritchett
University of Delaware
Newark, Delaware

Summary

Sally Kehoe
University of Delaware
Newark, Delaware

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UNIT 6

DISCIPLINE AND VERBAL CONTROL

UNIT 6

DISCIPLINE AND VERBAL CONTROL

BY

CARLTON W. KNIGHT, II

SCIENCE EDUCATION CENTER
COLLEGE OF EDUCATION
UNIVERSITY OF DELAWARE
NEWARK, DELAWARE

PROJECT STAFF

Graduate Assistant

Sally Kehoe

Undergraduate Assistants

Cathy Lawton
Rosemarie Paoli
Carolyn Pritchett
Janet Zinkowski

Experimental Edition
Third Revision

PREFACE

Title: Unit 6, Discipline and Verbal Control

Prerequisite: Review Unit 1, Instructional Overview

Materials:
Unit 1 - Manual (for reference only)
Unit 6 - Manual
Unit 6 - Video Tape
Paper and Pencil
Television Monitor
Video Recorder (playback only)

Caution: Playback machine must be compatible with video tape. Check tape size and playback limitations.

This unit is designed to show student control strategies and methods of recording significant discipline interactions. Various classroom discipline situations are simulated and specific suggestions are proposed for obtaining appropriate observational feedback.

The following three scenes are presented:

Scene I: A before and after sequence of nonverbal reinforcement.

Scene II: An example of the extraverbal implications associated with many control statements.

Scene III: An overview of repetitive discipline comments.

One of the advantages of simplified observational techniques is the ease with which they can be modified. You are encouraged to create and/or incorporate any changes that will make the techniques more applicable to your own classroom situation.

Prior to any observation, the teacher should explain to the observer specifically what type of data she would like to have recorded. Following the class a post-observational conference will provide the opportunity for the observer to present the objectively summarized data to the teacher and, if requested, discuss various aspects of the lesson.

K.K.

INTRODUCTION

Dr. Knight: One of the paramount considerations in any science class is discipline. If a teacher can't control his class, the results can be disastrous, both intellectually and physically.

Ms. Kehoe: The extremes, of course, are obvious. If the students can't hear you, or don't pay attention, learning is much slower. If there's physical chaos during your lab period, someone is going to get hurt, and it may be you.

Dr. Knight: Our objective here is to point out different discipline situations and identify some observational techniques that you might use to obtain feedback regarding your instructional strategies. Now if you're not happy with the results or your present techniques, you now have some objective evidence upon which to build future modifications.

Ms. Kehoe: The key here is obtaining objective data - accurate data. In the forthcoming scenes you'll see examples of different discipline situations and the accompanying verbal interactions. As you watch each scene, think of some simplified data-gathering techniques that you might use to record the pertinent information in each of these situations.

Dr. Knight: Our first sequence demonstrates a questionable instructional strategy - one used unconsciously by too many teachers. This is the impersonal compliment.

Ms. Kehoe: Compliments and other verbal rewards often set the tone for positive teacher-class interactions.

Dr. Knight: Sometimes, however, our non-verbal actions may negate our positive reinforcements. Watch the teacher's behavior in this class segment. Observe how she makes a positive comment to a student and then possibly nullifies the effect by simultaneously turning her back.

Scene I-A

Ms. Haubois: OK - another idea.

Student: We could have lots of races - We could have races and different contests and we could make an Olympics out of it, like.

Ms. Haubois: OK, very good. Very good. Holly?

Holly: We could go to Lewes.

Ms. Haubois: Why could we go to Lewes?

Holly: We could take a trip around the museum.

Ms. Haubois: OK - many interesting things happened there, Holly. I think that was a very, very fine idea. OK, another idea - Robin?

Robin: We could see what kinds of birds...

End Scene I-A

Dr. Knight: Now if the teacher really meant that as a personal compliment to Holly, she should have looked at her straight in the face and said it. Otherwise, Holly may have interpreted her remarks as having very little meaning.

Ms. Kehoe: If we do this constantly, maybe to save time or just because we don't think, it may have very negative effects on our overall verbal control in the classroom. You will now see a similar situation with a slight modification.

Scene I-B

Ms. Haubois: ...maybe go to the Sea Beside Us as an activity. They have all kinds of marine life there, and so forth. Yes, Rick?

Rick: What time would we eat lunch?

Ms. Haubois: Oh, very good idea! Do you often get hungry when you're out on trips like this? What time do you think would be a good time?

Rick: Around twelve?

Ms. Haubois: Shall we add that to our schedule then? Great going, Rick.

End Scene I-B

Dr. Knight: Beautiful! Now that really had meaning. Why is it whenever we verbally criticize a student, we do it face to face; but when we compliment him, we too often do it in a kind of haphazard manner. It's the little things that have meaning.

Ms. Kehoe: Now if you were observing someone's class, or were having someone observe yours, what kind of observational data could we collect?

Dr. Knight: Well, I might record the positive and negative verbal interactions. I might also record these positive compliments that are done in an impersonal way.

Ms. Kehoe: Certainly some of the latter will occur during a regular classroom situation, but if a continuing pattern occurs or appears, the teacher must then modify her teaching strategies.

Dr. Knight: You know another common instructional procedure is to give a verbal command or a statement, and yet give the impression that you don't really mean it when you say it. Now, when we make a discipline or control comment, if you can't make it the way you mean it, then don't say it. here's an example.

Scene II

Ms. Paoli: Today we're going to build terrariums. The materials that we'll need will first

be a glass gallon jar like this with an air-tight lid - all right, you four - pay attention! - with an air-tight lid. We're going to have sand and gravel on the bottom, and then plants on the...BOTH OF YOU GROUPS, PAY ATTENTION!...sand and gravel on the bottom, sand on the top, and the...ALL RIGHT, THAT'S IT! NOW IF YOU'RE NOT GOING TO PAY ATTENTION, YOU'RE NOT GOING TO KNOW WHAT TO DO THIS AFTERNOON! ...after you have the sand and gravel...

End Scene II

Dr. Knight: If she really meant for the class to be quiet, why didn't she emphasize it that way in the first place?

Ms. Kehoe: Well, she may have felt that with a soft reminder, the students would quiet down, or she may not have wanted to look bad by making a control statement. In either case, what she really did was to condition the students to wait for the third or fourth command before they need to react.

Dr. Knight: As an observer, you might record verbatim the control statements, and note the apparent effect. If many are being repeated and when the teacher finally gets mad and emphasizes it, and only <u>then</u> gets results, she might want to change her approach.

Ms. Kehoe: Once again, however, you may have some firm data upon which to base your decision.

Dr. Knight: Our last scene occurs in a lab situation. It demonstrates some of the verbal interactions that often take place here.

Ms. Kehoe: At the end of a lab period, most teachers will not remember all of the verbal control statements made throughout the period, much less to whom they were directed. It is not uncommon for us to remember the few major comments made to one lab group in particular and to forget the numerous minor control remarks directed at another.

Dr. Knight: You might find it advantageous to have an observer code all your control comments, note to whom or to which group they were directed, and the results. Let's observe the lab in progress, and note the teacher's interactions.

Scene III

Ms. Z: All right, do we understand what we're doing now? (yes, etc.) OK, why do we have to keep the clay flat? OK, fellows come on, let's calm down. This is a lab situation and we gotta watch our safety...

(Background talk among students)

Ms. Z: Fellows, let's be careful with those matches. They're not something to play with.

(Background talking among students)

Ms. Z: Stop playing...Does someone have matches here to share? Fellows ...now if we don't cooperate, this is going to be the end of lab.

Ms. Z: OK now, put the top over quickly, all the way down.

End Scene III

Dr. Knight: Here we have a classical example of a teacher devoting most of her class time to disciplinary comments rather than instructional interactions.

Ms. Kehoe: This could be objectively recorded by noting either the number of control remarks versus the number of instructional comments, or by using a stopwatch, and simply recording the time devoted to correctional remarks.

Dr. Knight: Do you all notice that fellow at the end of the table, the one that consistently ignored her remarks?

Ms. Kehoe: Yes, his disruptive behavior appeared to be reinforced by the students in his lab group who were laughing at his verbal antics.

Dr. Knight: I noticed the teacher tried to ignore him in this particular situation. But here that technique did not seem to be effective.

Ms. Kehoe: No. Another source of consistent disturbance was the lab group in the lower right-hand corner of the screen. I wonder if the teacher realized how many control comments she directed toward that particular group.

Dr. Knight: Now without an observational record, she probably didn't. She may have realized that they were a minor source of discomfort

but not fully realizing that they were the continuing source of disruption.

Ms. Kehoe: However, our objective here has been to stress the value of feedback regarding your discipline and verbal control in the classroom.

Dr. Knight: We've not demonstrated the detailed development of a specific technique as we have in the other units. Our purpose here was to stress the necessity for you to develop specific simplified techniques to fit your own situations.

Ms. Kehoe: You may also find that a tape recorder will often suffice for an observer, providing, of course, that you develop a technique for systematically analyzing your data.

Dr. Knight: The key to developing a systematic data-gathering technique is simplicity. The technique must be easy to apply and easy to interpret. Once you have gathered the data you now have a firm foundation upon which to evaluate, and then improve your own instructional strategies.